AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Original) A scanning-based apparatus for obtaining tomosynthesis data of an object comprising:

a divergent radiation source emitting radiation centered around an axis of symmetry;

a radiation detector comprising a stack of line detectors, each being directed towards the divergent radiation source to allow a ray bundle of said radiation that propagates in a respective one of a plurality of different angles to enter the line detector;

an object area arranged in the radiation path between said divergent radiation source and said radiation detector for housing said object; and

a device for moving said divergent radiation source and said radiation detector relative said object essentially linearly in a direction essentially orthogonal to said axis of symmetry, while each of said line detectors is adapted to record a plurality of line images of radiation as transmitted through said object in a respective one of said plurality of different angles.

2. (Currently Amended) The apparatus of claim 1 wherein said plurality of different angles are ~~disturbed~~ distributed over an angular range of at least 5°.

3. (Currently Amended) The apparatus of claim 1 wherein said plurality of different angles are ~~disturbed~~ distributed over an angular range of at least 10°.

4. (Currently Amended) The apparatus of claim 1 wherein said plurality of different angles are ~~disturbed~~ distributed over an angular range of at least 15°.

5. (Original) The apparatus of claim 1 wherein the number of line detectors in said stack of line detectors is at least 3.

6. (Original) The apparatus of claim 1 wherein the number of line detectors in said stack of line detectors is at least 5.

7. (Original) The apparatus of claim 1 wherein the number of line detectors in said stack of line detectors is at least 10.

8. (Original) The apparatus of claim 1 wherein said device for moving is adapted to move said divergent radiation source and said radiation detector relative said object a length which is sufficient for scanning each of said line detectors across the entire object to obtain, for each of said line detectors, a two-dimensional image of radiation as transmitted through said object in a respective one of said plurality of different angles.

9. (Original) The apparatus of claim 1 wherein

said divergent radiation source is an x-ray source; and

said line detectors are each a gaseous-based ionization detector, wherein electrons freed as a result of ionization by a respective ray bundle are accelerated in a direction essentially perpendicular to the direct of that ray bundle.

10. (Original) The apparatus of claim 9, wherein said gaseous-based ionization detector is an electron avalanche detector.

11. (Original) The apparatus of claim 1 wherein said line detectors are each any of a diode array, a scintillator-based array, a CCD array, a TFT- or CMOS-based detector, or a liquid detector.

12. (Original) The apparatus of claim 1 comprising a collimator arranged in the radiation path between said radiation source and said object area, said collimator preventing radiation, which is not directed towards said line detectors, from impinging on said object, thereby reducing the radiation dose to said object.

13. (Original) A scanning-based method for obtaining tomosynthesis data of an object using a divergent radiation source, which emits radiation centered around an axis of symmetry;
and a radiation detector comprising a stack of line detectors, each being directed towards the divergent radiation source to allow a ray bundle of said radiation that propagates in a respective one of a plurality of different angles to enter the line detector, the scanning based method comprising the steps of:

arranging said object in the radiation path between said divergent radiation source and said radiation detector; and

moving said divergent radiation source and said radiation detector relative said object essentially linearly in a direction essentially orthogonal to said axis of symmetry, while, by each of said line detectors, recording a plurality of line images of radiation as transmitted through said

14. (Original) The method of claim 13 wherein said divergent radiation source and said radiation detector are moved relative said object a length which is sufficient for scanning each of said line detectors across the entire object to obtain, for each of said line detectors, a two-dimensional image of radiation as transmitted through said object in a respective one of said plurality of different angles.

15. (Previously Presented) The apparatus of claim 1 comprising a collimator arranged in the radiation path between said radiation source and said object area, said collimator preventing radiation, which is not directed towards said line detectors, from impinging on said object, thereby reducing the radiation dose to said object, wherein said collimator comprises a plurality of slits, each being arranged to allow a respective one of the ray bundles to pass through.

16. (Previously Presented) The apparatus of claim 1 wherein the line detectors of said radiation detector are separated from each other.

17. (Previously Presented) The apparatus of claim 1 wherein each of the line detectors of said radiation detector is directed towards the divergent radiation source to allow a ray bundle of said radiation that propagates in a respective one of a plurality of different angles to enter the line detector, wherein the ray bundles are separated from each other when reaching the object area.